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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,077	10/24/2003	Qing Yang	022193-105.11US	3381
20350 7590 01/31/2008 TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			EXAMINER GU, SHAWN X	
			ART UNIT 2189	PAPER NUMBER
			MAIL DATE 01/31/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

mn

Office Action Summary	Application No.		Applicant(s)	
	10/693,077		YANG, QING	
	Examiner		Art Unit	
	Shawn X. Gu		2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25,26,30,31,37,41,42 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25,26,30,31,37,41,42 and 44-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 November 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This final Office action is in response to the amendment filed 5 November 2007. Claims 25, 26, 30, 31, 37, 41, 42 and 44-46 are pending. Claims 1-24, 27-29, 32-36, 38-40 and 43 have been cancelled. All objections and rejections not repeated below are withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 25, 26, 30, 31, 37, 41, 42 and 44-46 are rejected under 35 U.S.C. 102(e) as being anticipated by Carter et al. [6,148,377] (hereinafter "Carter").

Per claims 25, 37, 44, 45 and 46, Carters teaches an information backup system (Computer Network 10, Fig.1; for backup, see "replication" in col.10, ln.25-40, "fault-tolerant" in col.2, ln.54-55; also tape, disk, and RAID mentioned in col.3, ln.35-40 all imply a backup system) comprising:

a plurality of computer systems to be communicatively coupled to a communication network (Nodes 12a-c and Network 38, Fig.1 and 2; Col.5, Ln.60-67; also see Network 10 in Fig.1 and Col.6, Ln.1-11), each including a disk subsystem (Fig 2, 36a, 36b and Network Disk 20, see col.7, ln.1-8) and a network interface (Fig 3, 52, and col.9, ln.57), wherein each computer system is configured to generate disk I/O requests and to direct said disk I/O requests to said network interface (see Figs 3, 4 and 7, also see col. 10, lines 58-67, col. 11, lines 1-67 and col. 14, lines 23-50; the disk I/O requests are the Requests 112 that request pages stored in persistent/disk storage), said network configured to communicate said disk I/O requests and data associated with said disk I/O request among said plurality of computer systems (see network shown in Figs 1-4; also see col. 2, lines 25-29, col. 6, lines 45-67 and col. 7, lines 1-8);

a distributed cache memory (combination of local RAM caches 34a-c, see Fig.2 and Col.10, Ln.25-41) comprising a plurality of memory portions, each memory portion being a portion of a memory of a computer system among said computer systems, said memory portions being organized to function as a single coherent cache memory (the local RAM caches 34a-c serve as a single coherent cache for the shared memory space and the operation system 16, Col.7, Ln.18-38, Col.8, Ln.12-27, Col.10, Ln.25-41, Col.12 Ln.29-55); and

a distributed disk storage device (combination of RAID Disks 36a-c, see Fig.2 and col.3, ln.39-41) comprising a plurality of disk storage portions, each disk storage portion being a portion of a disk storage (Col.2, Ln.49-53) of one or more computer systems among said plurality of computer systems, said disk storage portions being organized to function as a single disk storage device (shared memory space and global address, see Fig.6, Col.7, Ln.18-52, Col.8, Ln.28-47, Col.12, Ln.30-55), wherein said computer systems access said distributed disk storage device as a single logical disk (see Figs, 3, 4 and 7, also see col. 10, lines 58-67, col. 11, lines 1-67 and col. 14, lines 23-50) by generating disk I/O requests (Requests 112 that request pages stored in persistent/disk storage, see Fig. 4) and wherein said distributed cache memory and said distributed disk storage device are to be accessible to any computer system with a bridge driver connected to the network independent of the computer system's location (a bridge driver is broadly interpreted as any device/component that couples Carter's local node's memory and disk portions to the local node's network interface, such device/components include buffers, disk caches, I/O ports and any other devices that perform similar functionalities; furthermore, it has already been established as set forth above that each of Carter's computer systems can access the shared global memory space) and the distributed cache memory is to be operable as a cache memory for said distributed data storage device (each local RAM cache serves as data cache for requested pages of the shared memory space which consists of the RAID disks 36a-c; see col. 12, lines 41-45), the bridge driver is for communications between its associated network interface and its associated disk subsystem and memory portion (a bridge

driver is broadly interpreted as any device/component that couples Carter's local node's memory and disk portions to the local node's network interface, such device/components include buffers, disk caches, I/O ports and any other devices that perform similar functionalities).

It is clear that claims 25, 37, 44, 45 and 46 are already substantially described as set forth above.

It is also clear that for claims 45 and 46, the first set of said computer systems is taught by Carter as Nodes 12a-12c, and Carter further teaches RAM memory (RAM, see Col.2, Ln.49-53, Col.3, Ln.22-40; Col.10, Ln.8-24).

Per claim 26, Carter further teaches said functionally coherent and physically distributed cache memory is to operate as a data cache for said functionally coherent and physically distributed disk storage device (each local RAM cache serves as data cache for requested pages of the shared memory space which consists of the RAID disks 36a-c; see col. 12, lines 41-45).

Per claims 30 and 41, Carter further teaches said functionally coherent and physically distributed disk storage device is to be configured as a functionally coherent and physically distributed RAID storage device (RAID, see Col.3, Ln.38-40).

Per claims 31 and 42, Carter further teaches said memory portions comprise portions of volatile random access memories of said plurality of computer systems (RAM, see Col.2, Ln.49-53, Col.3, Ln.22-40; Col.10, Ln.8-24).

Response to Arguments

4. Applicant's arguments filed on 5 November 2007 regarding claims 25, 26, 30, 31, 37, 41, 42 and 44-46 have been considered but they are not persuasive. The claims are taught by Carter as set forth above.

Regarding the Applicant's arguments and remarks for each of the independent claims that Carter does not teach "a distributed cache comprising a plurality of memory portions each within a memory of a computer system among a plurality of computer systems connected to the network, wherein the distributed cache is accessible to any computer system connected to the network independent of the computer system's location" (see Remarks/Arguments, page 12, third paragraph, lines 3-7), the Applicant is respectfully reminded that "bridge driver" can be broadly interpreted as any device/component that couples Carter's local node's memory and disk portions to the local node's network interface, such device/components include buffers, disk caches, I/O ports and any other devices that perform similar functionalities, and it should be clear that such devices/components must be present at each local node in Carter's invention. As for the distributed cache, it has already been established that since

Carter's local RAMs form part of the global shared memory space and each RAM also serves as a cache for the requested pages of the shared memory space which include the RAID disks 36a-c, it should be clear that the collection of local RAMs is a distributed cache. Since each portion of this distributed cache is accessible to at least one computer (each local node has a computer and a local RAM, and the computer can access the RAM on the same local node), the distributed cache itself is accessible to any computer in the network regardless of its location.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn Gu whose telephone number is (571) 272-0703. The examiner can normally be reached on 9am-5pm, Monday through Friday.

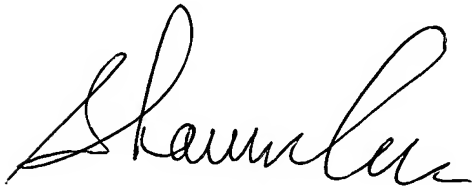
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald Bragdon can be reached on (571) 272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

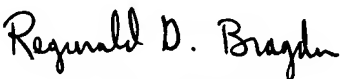
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Shawn X Gu
Patent Examiner
Art Unit 2189


REGINALD BRAGDON
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24 January 2008